

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Previously Presented) An optical filter module comprising:

an optical filter which selectively transmits, attenuates or reflects a light having a specific wavelength;

a first optical system which includes at least a first optical fiber to guide the light supplied to the optical filter, and a first lens to connect optically the first optical fiber with the optical filter, and

a second optical system which is oppositely provided to the first optical system through the optical filter, said second optical system including at least a second optical fiber to guide the light supplied from the optical filter, and a second lens to connect optically the optical filter with the second optical fiber, wherein

a lens surface of an end surface of the first optical system or the second optical system and a filter surface of an end surface of the optical filter, each including an optical path thereof, are bonded by adhesive agent coated on a portion apart from the optical path, further wherein

at least one of said lens surface and said filter surface, being opposed each other, includes at least one groove portion in said portion apart from the optical path which enables the adhesive agent penetrated through the bonded surfaces to stay therein, said groove portion being formed in such a way that penetration of the adhesive agent into the optical path can be blocked.

2. (Previously Presented) An optical filter module comprising:

an optical filter which selectively transmits, attenuates or reflects a light having a specific wavelength;

a first optical system which includes at least a first optical fiber to guide the light supplied to the optical filter, and a first lens to connect optically the first optical fiber with the optical filter, and

a second optical system which is oppositely provided to the first optical system through the optical filter, said second optical system including at least a second optical fiber to guide the light supplied from the optical filter, and a second lens to connect optically the optical filter with the second optical fiber, wherein

an end surface of the first optical system or the second optical system is comprised of a convex surface including an optical path and a flat portion protruding from a peripheral portion of the convex surface to an outside of the optical path direction, said flat portion being formed so as to protrude outwardly from the convex surface of which portion is a most distant from said peripheral portion, further wherein

said end surface and an end surface of the optical filter are bonded by adhesive agent coated on said flat portion.

3. (Previously Presented) An optical demultiplexer comprising:

an optical filter which selectively transmits only a light having a specific wavelength and reflects light having other wavelengths;

a first optical system which includes a first optical fiber to guide the light supplied to the optical filter and a second optical fiber to guide the light supplied from the optical filter, and a first lens to connect optically the first and second optical fibers with the optical filter, and

a second optical system which is oppositely provided to the first optical system through the optical filter, said second optical system including at least a third optical fiber to guide the light supplied from the optical filter, and a second lens to connect optically the optical filter with the third optical fiber, wherein

a lens surface of the first optical system and a filter surface of an end surface of the optical filter, each including an optical path thereof, are bonded by adhesive agent coated on a portion apart from the optical path, further wherein

at least one of said lens surface and said filter surface, being opposed each other, includes at least one groove portion in said portion apart from the optical path which enables the adhesive agent penetrated through the bonded surfaces to stay therein, said groove portion being formed in such a way that penetration of the adhesive agent into the optical path can be blocked.

4. (Previously Presented) An optical multiplexer comprising:

an optical filter which selectively transmits only a light having a specific wavelength and reflects light having other wavelengths;

a first optical system which includes at least a first optical fiber to guide the light supplied to the optical filter and a second optical fiber to guide the light supplied from the optical filter, and a first lens to connect optically the first and second optical fibers with the optical filter, and

a second optical system which is oppositely provided to the first optical system through the optical filter, said second optical system including at least a third optical fiber to guide the light supplied to the optical filter, and a second lens to connect optically the optical filter with the third optical fiber, wherein

a lens surface of the first optical system and a filter surface of an end surface of the optical filter, each including an optical path thereof, are bonded by adhesive agent coated on a portion apart from the optical path, further wherein

at least one of said lens surface and said filter surface, being opposed each other, includes at least one groove portion in said portion apart from the optical path which enables the adhesive agent penetrated through the bonded surfaces to stay therein, said groove portion being formed in such a way that penetration of the adhesive agent into the optical path can be blocked.

5. (Previously Presented) An optical demultiplexer comprising:

an optical filter which selectively transmits only a light having a specific wavelength and reflects light having other wavelengths;

a first optical system which includes at least a first optical fiber to guide the light supplied to the optical filter and a second optical fiber to guide the light supplied from the optical filter, and a first lens to connect optically the first and second optical fibers with the optical filter, and

a second optical system which is oppositely provided to the first optical system through the optical filter, said second optical system including at least a third optical fiber to guide the light supplied from the optical filter, and a second lens to connect optically the optical filter with the third optical fiber, wherein

an end surface of the first optical system is comprised of a convex surface including a optical path and a flat portion protruding from a peripheral portion of the convex surface to an outside of the optical path direction, said flat portion being formed so as to protrude outwardly from the convex surface of which portion is a most distant from said peripheral portion, further wherein

said end surface and an end surface of the optical filter are bonded by adhesive agent coated on said flat portion.

6. (Previously Presented) An optical multiplexer comprising:

an optical filter which selectively transmits only a light having a specific wavelength and reflects light having other wavelengths;

a first optical system which includes at least a first optical fiber to guide the light supplied to the optical filter and a second optical fiber to guide the light supplied from the optical filter, and a first lens to connect optically the first optical fiber with the optical filter, and

a second optical system which is oppositely provided to the first optical system through the optical filter, said second optical system including at least a third optical fiber to guide the

light supplied to the optical filter, and a second lens to connect optically the optical filter with the third optical fiber, wherein

an end surface of the first optical system is comprised of a convex surface including a optical path and a flat portion protruding from a peripheral portion of the convex surface to an outside of the optical path direction, said flat portion being formed so as to protrude outwardly from the convex surface of which portion is a most distant from said peripheral portion, further wherein

said end surface and an end surface of the optical filter are bonded by adhesive agent coated on said flat portion.

7. (Original) An optical demultiplexer according to claims 3 or 5, wherein

said optical demultiplexer is used for an optical signal separation apparatus comprising a plurality of the optical demultiplexers, having wavelength band-pass filters of which wavelength bands to transmit are different from one another, further wherein

an optical fiber to guide a light supplied from a wavelength band-pass filter of an optical demultiplexer is connected to another optical fiber to supply the light to another wavelength band-pass filter of another optical demultiplexer so that the light having a plurality of wavelength bands is separated into a plurality of optical signals, each corresponding to a wavelength band of a wavelength band-pass filter respective thereof.

8. (Original) An optical multiplexer according to claims 4 or 6, wherein

said optical multiplexer is used for an optical signal coupling apparatus which is provided with a plurality of optical multiplexers, having a wavelength band-pass filters of which wavelength bands for the light to transmit are different from one another, further wherein

an optical fiber to guide the light supplied from a wavelength band-pass filter of an optical multiplexer is connected to another optical fiber to supply the light to another wavelength band-pass filter of another optical multiplexer so that a band passed light is successively combined with another o the light transmitted through said another wavelength band-pass filter.

9. (Previously Presented) An optical apparatus comprising:

an optical filter which selectively transmits, attenuates or reflects a light having a specific wavelength;

a first optical system which includes at least a first optical fiber to guide the light supplied to the optical filter, and a first lens to connect optically the first optical fiber with the optical filter, and

a second optical system which is oppositely provided to the first optical system through the optical filter, said second optical system including at least a second optical fiber to guide the light supplied from the optical filter, and a second lens to connect optically the optical filter with the second optical fiber, wherein

a lens surface of an end surface of the first optical system or the second optical system and a filter surface of an end surface of the optical filter, each including an optical path thereof, are bonded by adhesive agent coated on a portion apart from the optical path, further wherein

at least one of said lens surface and said filter surface, being opposed each other, including a coating having a low wet property in an area around the optical path which blocks the adhesive agent from penetrating into the optical path.

10. Canceled

11. (Previously Presented) An optical apparatus comprising:

an optical filter which selectively transmits, attenuates or reflects a light having a specific wavelength;

a first optical system which includes at least a first optical fiber to guide the light supplied to the optical filter, and a first lens to connect optically the first optical fiber with the optical filter, and

a second optical system which is oppositely provided to the first optical system through the optical filter, said second optical system including at least a second optical fiber to guide the light supplied from the optical filter, and a second lens to connect optically the optical filter with the second optical fiber,

wherein a metallic film is formed on an outer peripheral surfaces of the first lens and the optical filter and the first lens and the optical filter are coupled by a solder provided on the metallic film.